

REMARKS

Claims 1- 10 are pending. Claims 2, 3, 4 and 10 are amended to put the claims in properly dependent form. No new matter is introduced by way of this amendment.

Priority

The Examiner states that provisional application filed February 9, 1999 upon which priority of the present application is claimed does not provide adequate support for the terms "mapping a grid" and "determining the similarity of a first signal from at least one discrete site to at least one reference signal" and "comparing said first signal to a threshold similarity measure obtained by comparing a reference signal to a theoretical signal". The Examiner goes on to state that such the effective filing date for the instant claims 1-10 is the filing date of parent application 09/500,555 filed February 9, 2000. Applicants respectfully disagree.

Applicants submit that support for "mapping a grid" is found in the provisional application filed February 9, 1999 at page 23, lines 29-33; and page 24, lines 1-2. There, a method that includes obtaining or generating a fiducial template that can then be mapped onto each data image is described. Moreover, the use of the same software, "image pro" for generating template images is discussed in the provisional application. This software and methods are the same as that found in the discussion of mapping a "grid" in application 09/500,555 at page 25, lines 5-13. Therefore Applicants respectfully submit that there is adequate support and the claim of priority for claims 1-4 should be February 9, 1999.

Claim Objections

Claims 3-4 are objected to because the claims incorrectly depend from claim 38.

However, the instant application does not contain a claim 38. In response Claims 3 and 4 have been amended to depend from claims 1 or 2. Applicants submit that this should overcome the Examiner's objection. Accordingly, Applicants respectfully request the withdrawal of the objection.

Claim rejections based under 35 U.S.C. § 112

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10 is indefinite for the recitation "said threshold similarity measure" because the recitation lacks proper antecedent basis in claim 5.

Claim 10 has been amended to depend from claim 6 which provides proper antecedent basis for the term "threshold similarity measure". Applicants submit that this should overcome the Examiner's rejection. Applicants respectfully request the withdrawal of the rejection.

Claim 10 is further found indefinite for the recitation "said first discrete site" because the recitation lacks proper antecedent basis in claim 5.

Claim 10 has been amended to depend from claim 6 which provides proper antecedent basis. Again, Applicants submit that this should overcome the Examiner's rejection. Accordingly, Applicants request the withdrawal of the rejection.

Claim rejections based under 35 U.S.C. § 102

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Walt et al. (U.S. Patent No. 6,327,410 B1, filed 11 September 1998). Applicants respectfully traverse.

Walt is directed to a microsphere-based analytical chemistry system and method for

SF-1117622_1

making the same in which microspheres or particles carrying bioactive agents may be combined randomly or in ordered fashion and dispersed on a substrate to form an array while maintaining the ability to identify the location of bioactive agents and particles within the array using an optically interrogatable, optical signature encoding scheme.

In contrast, claim 1, from which claims 2-4 depend, sets forth a method of determining the presence of a target analyte in a sample including mapping a grid onto a first data image to create a registered first data image and mapping a grid onto a second data image, wherein the second data image is acquired by contacting a random array of microspheres distributed on the surface of a substrate with sample.

The law is well established that in order to anticipate a claim, the prior art must disclose "each and every element" of the claimed invention *SSIH Equipment S.A.v. U.S. Inc. Int'l. Trade Commission*, 218 USPQ 678, 688 (Fed. Cir. 1983). As stated by the Federal Circuit in *In re Bond*, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990), "[f]or a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference." (Emphasis added). See also *Glaverbel Societe Anonyme v. Northlake Marketing & Supply, Inc.*, 33 USPQ2d 1496 (Fed. Cir. 1995).

The Examiner points to matrices in Walt et al. as teaching mapping a grid. See office action at page 5. However, the description in Walt relied upon by the Examiner describes comparing two matrices to determine the location of each bead in each sublibrary of beads sequentially added to an array. However, the mere reference to matrices does not teach "mapping a grid onto said first data image to create a registered data image". Rather, the matrices referred to in the cited passage of Walt refer to the physical structure of the array itself.

Therefore the rejection is improper. Applicants respectfully request the withdrawal of the rejection.

With respect to claim 5, Applicants note that without necessarily agreeing with the propriety of the rejection, claim 5 has been canceled. In light of the cancellation of the claim, Applicants submit that the rejection is moot. Applicants respectfully request the withdrawal of the rejection.

Claim rejections based under 35 U.S.C. § 103 (a)

Claims 6-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Walt et al. (U.S. Patent No. 6,327,410 B1, filed 11 September 1998) in view of Lockhart et al. (U.S. Patent No. 6,040,138, filed 15 September 1995).

The distinctions between Walt et al. and the claims of the present invention are discussed above and are incorporated at this point by reference.

Lockhart et al. is directed to methods of monitoring the expression levels of a multiplicity of genes. The methods involve hybridizing a nucleic acid sample to a high density array of oligonucleotide probes where the high density array contains oligonucleotide probes complementary to subsequences of target nucleic acids in the nucleic acid sample. Lockhart et al. does not teach or suggest the use of microspheres distributed on the surface of a substrate. In addition, Lockhart et al. does not teach or suggest a random array. And finally, Lockhart et al. does not teach or suggest determining the similarity of a first signal at a discrete site with a reference signal and determining whether the discrete site contains a bead. Accordingly, neither Walt, Lockhart nor the combination of the two teach all elements of the claims.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In addition, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaack*, 947 F2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Examiner states that it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the threshold measure of Lockhart et al. to the signal detection and comparison of Walt et al. to thereby determine presence or absence of a bead, to discard a signal below the threshold and to accurately analyze and distinguish signals from background signals as taught by Lockhart et al. (column 23, line 41-column 24, line 6). Applicants respectfully traverse.

As a preliminary matter, neither Walt et al. nor Lockhart et al. alone or in combination teach or suggest determining the similarity of a first signal at a discrete site with a reference signal and determining whether the discrete site contains a bead. Therefore the requirement that the prior art reference (or references when combined) must teach or suggest all the claim limitations has not been met.

Lockhart et al. discusses methods for evaluating hybridization results through the use of normalization controls which are probes complementary to control sequences added in known concentration to the sample. See Lockhart et al. column 24, lines 7-31. The Examiner cites to Column 23, line 41, column 24, line 6 of Lockhart et al. for the assertion that by applying the

SF-1117622_1

detection and comparison of Walt to the threshold measure of Lockhart et al. one can determine the presence or absence of a bead. However, it is unclear how this conclusion was reached as neither reference alone nor combination discusses analyzing array locations to determine the presence or absence of a bead as claimed in the present invention. Moreover, while Lockhart may discuss comparing a signal to a threshold intensity level, the present claims compare a signal to a threshold similarity measure. That is, in contrast to the threshold intensity level of Lockhart, the present claims set forth a method that includes comparing a signal to a similarity measure. When the first signal is within a threshold similarity measure, the discrete site contains a bead. As such, Applicants submit that Walt et al. and Lockhart et al. alone or in combination do not teach each element as claimed. Applicants respectfully request the withdrawal of the rejection.

DOUBLE PATENTING

Claims 1-4 are provisionally rejected under the judicially created doctrine of obvious-type double patenting as being unpatentable over claims 49, 53 and 54 of co-pending application No. 09/636,387 in view of Walt et al. (U.S. Patent No. 6,327,410).

Applicants respectfully request that this rejection be held in abeyance until there is an indication of allowable subject matter.

CONCLUSION

Applicants submit that the claims are now in condition for allowance and early notification to that effect is respectfully requested. If the Examiner feels there are further

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unresolved issues, the Examiner is respectfully requested to phone the undersigned at
(415) 781-1989.

Respectfully submitted,

DORSEY & WHITNEY LLP

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David C. Foster, Reg. No. 44,685
for Robin M. Silva
Reg. No. 38,304
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Four Embarcadero Center
Suite 3400
San Francisco, CA 94111-4187
Telephone: (415) 781-1989

Customer No. 32940